VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 1-11 and 18-29 as follows:

1. (amended) A ~~DNA inspecting~~ method of inspecting by irradiating a ~~to-be-inspected~~ DNA chip with a plurality of M multi-spot excitation lights having a desired wavelength and of analyzing obtained fluorescent lights generated from said DNA chip, said ~~to-be-inspected~~ DNA chip being obtained by hybridizing a target with ~~a~~ DNA ~~chip~~, said target being obtained by adding a desired fluorescent material to a DNA fragment formed by ~~a~~ preprocessing from ~~a~~ DNA that is ~~a detection target~~ an object to be inspected, said DNA chip including a plurality of L cells that are microscopic areas where a plurality of types of desired fragments are arranged in accordance with a predetermined ~~regular~~ rule, where M is the number of multi-spot excitation lights and L is the number of cells, comprising the steps of:

irradiating mutually different positions of said DNA chip with said plurality of M multi-spot excitation lights simultaneously with the use of an objective lens for a time Δt that is longer than a fluorescent light attenuation time so as to generate fluorescent lights from said DNA chip, said multi-spot excitation lights having a spot diameter d that is smaller than a dimension D of said each cell of said plurality of L cells,

guiding said ~~obtained~~ generated fluorescent lights from said DNA chip to a fluorescent light detecting optical path,

separating and detecting said fluorescent lights from respective multi-spot lights generated by said multi-spot excitation lights irradiated onto said DNA chip, and

executing an inspection of said ~~to-be-inspected~~ DNA chip ~~from~~ in accordance with positions and intensities of said detected fluorescent lights so as to enable a determination of a kind and density of the hybridized target DNA.

2. (amended) The ~~DNA~~ inspecting method as claimed in Claim 1, wherein said plurality of M multi-spot excitation ~~light spots~~ lights are arranged in a 1-dimensional or 2-dimensional configuration with a fixed pitch on a straight line.

3. (amended) The ~~DNA~~ inspecting method as claimed in Claim 1, further comprising the steps of:

arranging said plurality of M ~~irradiation spots~~ multi-spot excitation lights irradiated onto said DNA chip on a straight line with a spacing of ~~substantially~~ kd with reference to said spot diameter d and an integer k, and

repeating an operation in sequence k times, said operation being an operation where, after said irradiation with said spot array has been performed during said time Δt, said array is displaced in a direction of said ~~array~~ straight line by substantially d and said irradiation is performed again during said time Δt, and thereby

executing said inspection toward kM spot positions in said ~~array~~ straight line direction, and

displacing said DNA chip and said objective lens relatively at least in a direction perpendicular to said ~~array~~ straight line direction, and thereby

inspecting a desired 2-dimensional area on said DNA chip.

4. (amended) The ~~DNA~~ inspecting method as claimed in Claim 1, further comprising the step of providing fluorescent light detection deflecting means within said fluorescent light detecting optical path so that said fluorescent lights generated by said plurality of M multi-spot excitation lights are synchronized with said displacement of said spot array in said array direction and come onto substantially the same location on said light-receiving apertures.

5. (amended) The ~~DNA~~ inspecting method as claimed in Claim 4, wherein

said fluorescent light detection deflecting means includes a wavelength selection beam splitter for permitting said excitation lights to pass therethrough and causing said fluorescent lights to be reflected.

6. (amended) The ~~DNA~~ inspecting method as claimed in Claim 1, further comprising the step of providing a filter within said fluorescent light detecting optical path isolated from an excitation optical path, said filter permitting only said fluorescent lights to pass there-through and light-shielding said excitation lights.

7. (amended) The ~~DNA~~ inspecting method as claimed in Claim 1, further comprising the step of forming said M multi-spot excitation ~~spot~~ lights by using a plurality of laser light-sources.

8. (amended) The ~~DNA~~ inspecting method as claimed in Claim 7, wherein said M multi-spot excitation ~~spot~~ lights are obtained by the steps:

guiding, into optical fibers, said lights emitted from said plurality of laser light-sources, and

causing said lights to be emitted from light-emitting ends of said optical fibers, said light-emitting ends being aligned with M desired pitches.

9. (amended) The ~~DNA~~ inspecting method as claimed in Claim 1, wherein said excitation lights include a plurality of different wavelengths, and further comprising the step of ~~separating~~ distinguishing different targets ~~so as to detect said different targets~~ on said DNA chip, a plurality of fluorescent materials having been added to said different targets.

10. (amended) ~~THe DNA~~ The inspecting method as claimed in Claim 9, further comprising the steps of:

performing simultaneous irradiation with said excitation lights including said plurality of wavelengths, and thereby

~~separating~~ distinguishing said different targets on said DNA chip so as to simultaneously detect said different targets~~,~~ in accordance with said plurality of fluorescent materials having been added to said different targets.

11. (amended) The ~~DNA~~ inspecting method as claimed in Claim 1, further comprising the steps of:

~~causing a 2nd light to be obliquely launched into a proximity to said excitation spot lights~~ irradiating a second light with an oblique incident angle on an inspection plane of said ~~to-be-inspected~~ DNA chip; ~~so as to detect a position at which said light is reflected on said inspection plane, thereby executing a focal point detection, said desired fluorescent material added target being hybridized with said inspection plane,~~

detecting a reflection position at which said second light is reflected on said inspection plane; and

controlling a relative distance between said inspection plane and said objective lens in accordance with ~~this information, thereby achieving said focal point~~ a result of detection of said reflection position.

18. (amended) ~~A DNA~~ An inspecting method, comprising the steps of:

branching a laser beam so as to form ~~8~~ eight or more beams, said laser beam being emitted from ~~a~~ at least one laser light-source,

irradiating an inspection plane of a DNA chip with said ~~8~~ eight or more beams ~~formed by being branched~~,

causing fluorescent lights ~~to correspond to said respective beams~~ to be generated from said DNA chip and separating said fluorescent lights from reflected lights of said beams so as to detect said fluorescent lights, ~~said fluorescent lights~~

~~being generated from said DNA chip by said irradiation, said respective beams the irradiation of which having been performed in being branched into 8 or more,~~ and

inspecting said DNA chip in accordance with information on said fluorescent lights detected ~~by being caused to correspond to said respective beams~~.

19. (amended) ~~A DNA~~ An inspecting method, comprising the steps of:

branching a laser beam into a plurality of beams having substantially the same intensity, said laser beam being emitted from ~~a~~ at least one laser light-source,

projecting images of said plurality of branched beams onto an inspection plane of a DNA chip,

~~image-photographing~~ detecting images of fluorescent lights generated from said DNA chip by said projected images of said plurality of beams, and

inspecting said DNA chip in accordance with information on said ~~image-photographed~~ detected images of said fluorescent lights.

20. (amended) The ~~DNA~~ inspecting method as claimed in Claim 19, wherein said DNA chip is inspected by irradiating said DNA chip with said beams while displacing said DNA chip and said beams relatively in a 2-dimensional manner.

21. (amended) The ~~DNA~~ inspecting method as claimed in Claim 19, wherein said DNA chip is irradiated with said branched beams located in a 2-dimensional manner.

22. (amended) ~~A DNA~~ An inspecting method of irradiating a sample with multi-spot excitation lights so as to detect fluorescent lights generated from said sample, said sample ~~being obtained by coupling a~~ attaching DNA with at least one fluorescent molecule ~~-added DNA fragment with a DNA corresponding thereto~~, comprising the steps of:

separating said fluorescent lights from said multi-spot excitation lights, said fluorescent lights being emitted from respective multi spots obtained by irradiating said sample with said multi-spot excitation lights including ~~a large number of~~ M microscopic spots, where M is the number of microscopic spots,

detecting ~~said~~ fluorescent light images of said fluorescent lights emitted from said sample with the use of a plurality of ~~weak~~ light detecting devices capable of executing a photon counting,

photon-counting, individually, each of photon signals obtained from said respective light detecting devices,

storing, individually, data of photon-counted numbers Npm detected by said respective light detecting devices,

changing positions of said multi-spot lights and a position of said sample relatively so as to store in sequence data of said photon-counted numbers from said respective ~~detectors~~ light detecting devices,

collecting ~~and storing~~ stored data on said photon-counted numbers over a desired range on said sample, and

constructing a fluorescent light ~~picture~~ image from said collected data so as to execute said ~~DNA~~ inspection.

23. (amended) ~~A DNA~~ An inspecting method of irradiating a sample with sheet-shaped excitation lights so as to detect fluorescent lights generated from said sample, said sample ~~being obtained by coupling a~~ attaching DNA with at least one fluorescent molecule ~~added DNA fragment with a DNA corresponding thereto~~, comprising the steps of:

separating said fluorescent lights from ~~said~~ said sheet-shaped excitation lights, said fluorescent lights being emitted from irradiation areas ~~having a long and narrow configuration~~, said irradiation areas being obtained by irradiating said sample with said sheet-shaped excitation lights,

detecting ~~said~~ fluorescent light images of said fluorescent lights emitted from said sample with the use of a plurality of ~~weak~~ light detecting devices capable of executing a photon counting,

photon-counting, individually, each of photon signals obtained from said respective light detecting devices,

storing, individually, data of photon-counted numbers Npm detected by said respective light detecting devices,

changing positions of said irradiation areas and a position of said sample relatively so as to store in sequence data of said photon-counted numbers from said respective ~~detectors, said irradiation areas resulting from said sheet-shaped excitation lights and having said long and narrow configuration~~ light detecting devices,

collecting ~~and storing~~ stored data on said photon-counted numbers over a desired range on said sample, and

constructing a fluorescent light ~~picture~~ image from said collected data so as to execute said ~~DNA~~ inspection.

24. (amended) The ~~DNA~~ inspecting method as claimed in Claim 22, wherein said M is equal to 10 or more.

25. (amended) The ~~DNA~~ inspecting method as claimed in Claim 24, wherein said M is equal to 50 or more.

26. (amended) The ~~DNA~~ inspecting method as claimed in Claim 22, wherein said multi-spots are arranged on a 1-dimensional straight line or a 2-dimensional ~~straight line~~ array.

27. (amended) The ~~DNA~~ inspecting method as claimed in Claim 22 or 23, wherein said multi-spot excitation lights or said sheet-shaped excitation lights are ~~multi-color~~ colored lights having 2 or more wavelengths.

28. (amended) A ~~DNA inspecting~~ method of ~~irradiating a sample with excitation lights so as to detect~~ inspecting a DNA chip by detecting fluorescent lights~~,~~ ~~said sample being obtained by coupling a fluorescent molecule-added DNA fragment with a DNA corresponding thereto~~ generated from a fluorescent material on a DNA sample, comprising the steps of:

separating said fluorescent lights from ~~said~~ excitation lights irradiated onto said DNA sample, said fluorescent lights being emitted from respective multi-spots or sheet-shaped irradiation locations on said DNA sample that is obtained by irradiating said DNA sample with said excitation lights in the form of multi-spot excitation lights or ~~said~~ sheet-shaped excitation lights, said multi-spot excitation lights including ~~a large number of~~ M microscopic spots, where M is the number of microscopic spots,

detecting ~~said~~ fluorescent light images from said fluorescent lights emitted from said DNA sample with the use of a plurality of M ~~weak~~ light detecting devices in an average pixel detecting time of (300 μsec/M) or less,

storing, individually, signals obtained from said respective light detecting devices,

changing, relatively, positions of said multi-spot lights or said sheet-shaped excitation lights and a position of said DNA sample so as to store said signals in sequence,

collecting ~~and storing~~ said stored signals over a desired range on said DNA sample, and

constructing a fluorescent light ~~picture~~ image from said collected ~~data so as to inspect said DNA~~ and stored signals.

29. (amended) A ~~DNA inspecting~~ method of ~~irradiating a sample with excitation lights so as to detect~~ inspecting a DNA chip by detecting fluorescent lights~~,~~ ~~said sample being obtained by coupling a fluorescent molecule-added DNA fragment with a DNA corresponding thereto~~ generated from a fluorescent material on a DNA sample, comprising the steps of:

separating said fluorescent lights from ~~said~~ excitation lights irradiated onto said DNA sample, said fluorescent lights being emitted from respective multi-spots or sheet-shaped irradiation locations on said DNA sample that is obtained by irradiating said DNA sample with said excitation lights in the form of multi-spot excitation lights or sheet-shaped excitation lights, said multi-spot excitation lights including ~~a large number of~~ M microscopic spots ~~the~~ having a diameter or ~~the~~ focus-achieving width ~~of~~ which is smaller than 3 μm and larger than 0.3 μm, said sheet-shaped excitation lights having a width that is smaller than 3 μm and larger than 0.3 μm, where M is the number of microscopic spots,

detecting ~~said~~ fluorescent light images emitted from said DNA sample with use of a plurality of ~~weak~~ light detecting devices,

storing, individually, signals obtained from said respective light detecting devices,

changing, relatively, positions of said multi-spot lights or said sheet-shaped excitation lights and a position of said DNA sample so as to store said signals in sequence,

collecting ~~and storing~~ said stored signals over a desired range on said sample, and

constructing a fluorescent light ~~picture~~ image from said collected ~~data so as to inspect said DNA~~ signals.